

Amendments to the Claims:

1. (Currently Amended) A PVD process for coating substrates, wherein the substrate is pre-treated in the vapour of a pulsed, magnetic field-assisted cathode sputtering operation, and during pre-treatment a magnetic field arrangement of ~~the~~ a magnetron cathode type, with a strength of the horizontal component in front of the target of 100 to 1500 Gauss, is used for magnetic field-assistance, and wherein after pre-treatment further coating is effected by means of cathode sputtering, with the power density of the pulsed discharge during pre-treatment being greater than 1000 W.cm^{-2} .
2. (Original) A process in accordance with Claim 1 wherein the power density falls within the range from 2000 to 3000 W.cm^{-2} .
3. (Currently Amended) A process in accordance with Claim 1 wherein ~~the~~ a pulse duration (on-time) ranges between 10 and 1000 μs , and that ~~the~~ a pulse interval (repetition period) is between 0.2 ms and 1000 s.
4. (Original) A process in accordance with Claim 1 wherein the pulse duration is 50 μs and the pulse interval is 20 ms.
5. (Currently Amended) A process in accordance with Claim 1 wherein ~~the~~ magnetron discharge, ~~which is of the magnetron discharge type,~~ is distributed over ~~the~~ a cathode

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surface area and occupies at least 50 % of the surface area.

6. (Currently Amended) A process in accordance with Claim 5 wherein the discharge is distributed over 70-90 % of the a cathodic surface area.
7. (Currently Amended) A process in accordance with Claim 1 wherein ~~the~~ an average pulsed discharge current density is less than 10 A.cm⁻².
8. (Currently Amended) A process in accordance with Claim 1 wherein ~~the~~ a localised maximum pulsed discharge current density is less than 100 A.cm⁻².
9. (Currently Amended) A process in accordance with Claim 1 wherein the pulses which ~~are~~ are generated have a peak voltage from 0.5 to 2.5 kV.
10. (Currently Amended) A process in accordance with Claim 1 wherein pre-treatment with a magnetic field-assisted cathode sputtering is conducted in a non-reactive atmosphere, ~~or~~ in selected from a group consisting of Ne, Ar, Kr or and Xe, with targets made which include d material selected from a group consisting of Cr, V, Ti, Zr, Mo, W, Nb or and Ta.
11. (Original) A process in accordance with Claim 1 wherein pre-treatment is effected with Ar in the pressure range from 10⁻⁵ to 10⁻¹ mbar.

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12. (Original) A process in accordance with Claim 1 wherein pre-treatment is effected with Ar at a pressure of 10^{-3} mbar.
13. (Original) A process in accordance with Claim 1 wherein during pre-treatment a negative bias voltage within the range from 0.5 to 1.5 kV is applied to the substrates, so that an etching or cleaning process is initiated simultaneously with an ion implantation process (ABS technique).
14. (Original) A process in accordance with Claim 13 wherein the negative bias voltage is pulsed with pulse widths of 2 μ s to 20 ms and a pulse interval which is likewise 2 μ s to 20 ms.
15. (Original) A process in accordance with Claim 1 wherein the coating formed by cathode sputtering consists of the nitrides TiN, ZrN, TiAlN, TiZrN, TiWN, TiNbN, TiTaCN, TiBN or the carbonitrides TiCN, ZrCN, TiAlCN, TiZrCN, TiVCN, TiNbCN, TiTaCN or TiBCN.
16. (Currently Amended) A process in accordance with Claim ~~15~~ 1 wherein the coating contains 0.1 to 5 atomic % of ~~the rare earth elements~~ an element selected from the group of Sc, Y, La or Ce.
17. (Currently Amended) A process in accordance with Claim 1 wherein the coatings consist of fine (nanometre-scale) multi-layer coatings with a periodicity of 1 to 10 nm, from the group comprising TiN/TiAlN, TiN/VN, TiN/NbN, TiN/TaN, TiN/ZrN, TiAlN/CrN, TiAlN/ZrN,

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TiAlN/VN, CrN/NbN, CrN/TaN, CrN/TiN, Cr/C, Ti/C, Zr/C, V/C, Nb/C or Ta/C.

18. (Currently Amended) A process in accordance with Claim ~~16~~ 17 wherein one of the cited individual layers contains 0.1 to 5 atomic % of ~~the rare earth elements~~ an element selected from the group of Sc, Y, La or and Ce.

19. (Currently Amended) A process in accordance with Claim ~~16~~ 17 wherein both of the cited individual layers contain 0.1 to 5 atomic % of ~~the rare earth elements~~ an element selected from the group of Sc, Y, La or and Ce.

20. (Currently Amended) A process in accordance with Claim 1 wherein the cathode sputtering employed during coating is of ~~the unbalanced magnetron type~~ sputtering.

21. (Original) A process in accordance with Claim 1 wherein identical cathodes and identical magnetic field arrangements are used for pre-treatment and coating.

22. (Currently Amended) A process in accordance with Claim 21 wherein specific adaptations of the magnetic field strength are made, by adjusting the distance of ~~the a~~ a magnetic array from ~~the a~~ a target surface, in order to optimise the pre-treatment and coating operations.

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23. (New) A PVD process for coating substrates, wherein the substrate is pre-treated in the vapour of a pulsed, magnetic field-assisted cathode sputtering operation, and during pre-treatment a magnetic field arrangement of a magnetron cathode, with a strength of the horizontal component in front of the target of 100 to 1500 Gauss, is used for magnetic field-assistance, and wherein after pre-treatment further coating is effected by means of cathode sputtering, with the power density of the pulsed discharge during pre-treatment being greater than 200 W.cm^{-2} .

24. (New) A process in accordance with claim 23 wherein magnetron discharge is distributed over a cathode surface area and occupies at least 10% of the surface area.